AWIPS-CRS Data Interface Troubleshooting

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This quick guide has been created in an effort to help the AWIPS Site Support Team, AWIPS Network Control Facility, the CRS Program Office staff and site users expedite troubleshooting the LAN data interface between the AWIPS system and the CRS system.

CRS Assumptions:

The site has opened and is monitoring the CRS "*Alert Monitor*" in the CRS Main Window. If the "*Alert Monitor*" window has been closed for any reason, the site user should reopen it by going to "*System -> Alert Monitor*" on the CRS Main Window. The "*Alert Monitor*" window will automatically open on receipt of an alert condition.

The site has the CRS "*Message Monitor*" active on the CRS Main Window. The "*Message Monitor*" is normally iconified and will automatically open on receipt of an alert condition. If the "*Message Monitor*" icon or window is not present on the CRS Main Window, the user should place the mouse over any blank area of the main window, press the right mouse button and select "*Message Monitor*". The "*Message Monitor*" window will open.

The site has configured the CRS system to use the AWIPS LAN data interface. This can be verified by going to "*Maintenance -> Site Configuration -> AFOS/AWIPS*" on the CRS Main Window. "*AWIPS*" should be selected as the "*Selected Interface*". If needed, select "*AWIPS*" and click the "*Apply*" hotkey and exit the window.

AWIPS Assumptions:

The */data/fxa/workFiles/nwr/nwr.cfg* file has been correctly setup in the site AWIPS system. The file should contain, in strict order, the following information: CRS User Name, CRS Password, and Interface Type. Example:

```
crs
crs-password <--- real password not included here...
LAN
```

The site DS1 */etc/hosts* file contains correct entries for the site CRS nodes. Note that this file is pushed by NIS to all site AWIPS nodes. Example from the NHDA system:

```
# CRS (Console Replacement System) Devices - NOAA Weather Radio
165.92.21.111   0mp-nhda      0MP     # Multi-processor
165.92.21.112   5mp-nhda      5MP     # Multi-processor
165.92.21.113   1fe-nhda      1FEP    # Front End Processor
165.92.21.114   2fe-nhda      2FEP    # Front End Processor
165.92.21.115   3fe-nhda      3FEP    # Front End Processor
165.92.21.116   4bk-nhda      4BKUP   # Backup
165.92.21.117   ps8-nhda       ps8    #
```

For products being received from the AWIPS Asynchronous Product Scheduler, verify the correct settings in the:

/data/fxa/workFiles/asyncProductScheduler/aps_pil.tbl
/data/fxa/workFiles/asyncProductScheduler/aps_line.tbl

files. Consult the *APS Systems Manager's Manual* and the *APS Users Guide* for details. Example (partial) of the *aps_pil.tbl* file from EAX:

```
PID|Line #|Priority|Routing
AAABABCCC|3|3|
AAABBBCCC|3|2|csm
AAABBBCCC|1|3|
STLAWSNW1|1|3|CRS
STLAWSNW2|1|3|CRS
STLBZWNW1|1|1|CRS
STLBZWNW2|1|1|CRS
STLCEMNW1|1|1|CRS
STLCEMNW2|1|1|CRS
STLCLINW1|1|3|CRS
STLCLINW2|1|3|CRS
STLCLMNW1|1|3|CRS
STLCLMNW2|1|3|CRS
AAABABCCC|4|3|CRS
```

Example of the *aps_pil.tbl* file from EAX:

```
Line #|Line Name|Status|Device Name|Baud|Data Bits|Parity|Stop Bits
0|printer|1|/dev/tty1p2|1200|8|NONE|1
1|BUBBLE|1|/dev/tty1p3|9600|8|NONE|1
2|SAIDS|1|/dev/tty1p6|9600|8|NONE|1
```

AWIPS/CRS LAN Connectivity:

The LAN functionality between the AWIPS system and the CRS system can be verified by executing the following steps. The site can perform a UNIX "*ping*" command to determine basic connectivity between the AWIPS and the CRS systems. At a AWIPS workstation, open a unix shell window. At the prompt type:

$/usr/sbin/ping 0MP
$/usr/sbin/ping 5MP

At a CRS workstation, open a unix shell window. At the prompt type:

$/usr/sbin/ping as1
$/usr/sbin/ping as2

Verify connectivity between the AWIPS and CRS systems. If the ping test fails examine the following for clues as to possible problems:

CRS LANTRONIX LB2 LAN Bridge Front Panel Indicators:

PWR - ON
SER - Blinking green at an approximately 1 second rate.
1 and 2 - Flashing green intermittently, indicating data flow.

LB2 LAN Bridge LAN Transceivers:

AUI 1 10Base2 (CRS LAN):

Power - ON
SQE Switch - OFF

AUI 2 10BaseT (AWIPS LAN):

Power - ON
SQE Switch - OFF
JAB - OFF
COL - OFF
Rx and Tx - Flashing green intermittently, indicating data flow.

AWIPS Four (4) Port Hub:

Power - ON
Link/Transmit - Flashing green intermittently, indicating data flow.

Verify all physical connections at the AWIPS 4-port hub and LB2 LAN Bridge including the seating of the AUI Transceivers.

A higher level test would be for the site user to perform a manual ftp to the CRS master processor from the AS1 node (use AS2 when in a AS1 fail state), using the "*crs*" user account on the CRS system. This will verify correct operation of the *ftpd* daemon running on the CRS master processor.

AWIPS to CRS Data Transfer Process:

Data is transferred from the AWIPS system to the CRS system by the UNIX "*ftp*" process. The AWIPS script */awips/fxa/bin/transferNWR* accomplishes this. Note that *transferNWR* will run on the DS, AS1, AS2, a graphic workstation or a text workstation. The script is able to determine which CRS main processor, 0MP or 5MP, is currently the master. Once this has been determined, formatted products are ftp transferred to the system master processor, normally 0MP. In a failover state, 5MP will take over as the CRS master processor. The *transferNWR* script takes formatted products from the */data/fxa/workFiles/nwr/pending* directory on AWIPS, and places them in the CRS */crs/data/CP/awips directory* on the selected master processor.

The *transferNWR* script has built-in logging of important errors and events. Log data is written to the DS and AS */data/logs/fxa/<Current Date>* directory or to the workstation /data/logs/fxa/display/<$DISPLAY>/<$date> directory. Please note that the work station logs will be local to the machine *NWRBrowser* is being run from, ie. if you telnet from ws5-nhda to ws2-nhda and set DISPLAY to ws5-nhda:0.0. Then send a product to the CRS using NWRBrowser, you will find, on ws2-nhda, a directory named /data/logs/fxa/display/ws5-nhda:0.0/<$date>, where <$date> would be the current date. All logging by the *transferNWR* script is given the name

logStreamExpect<PID><AWIPS_Node>-<SiteId><HHMMSS>.

An example for ds1-nhow in directory */data/logs/fxa/990623* is:

logStreamExpect5126ds1-nhow121907

The user can inspect the pertinent log files for errors.

The *NWRBrowser* window should be open, on a AWIPS graphic or text workstation, to monitor weather message transfers from AWIPS to CRS. Make sure all messages are in the "sent" column of the window. Message in the "pending" column may be edited for content or corrections, then manually sent using the "*Send*" button. Products that are not edited will be automatically sent to CRS after a predetermined timeout period. Consult the pertinent AWIPS documentation for details.

If the CRS application is up and operating correctly and the site configuration is set to AWIPS, the formatted products will be processed by the CRS Communications Processor software for possible storage in the database, and removed from the */crs/data/CP/awips* directory. If either the CRS application is not operational or the CRS application is operational but the site configuration is set to AFOS, then the formatted products will remain queued in the */crs/data/CP/awips* directory.

BAD Data Received by CRS:

If the CRS system detects something wrong with the formatted product, as received from the AWIPS system, it places the bad data into the master processor */crs/data/CP/recovery* directory. Normally this directory should be empty. Every time a message with bad data is detected, an *Alert Monitor* message is generated that describes the problem with the message. These messages are available for inspection and/or correction by clicking on "*Messages -> Weather Message Correction*" on the CRS Main Window. Clicking on the "*Get Error File*" button will list all of the bad messages. Highlight and click on the desired filename then the "*Ok*" button to display the message. Example types of errors could be: Invalid Listening Area Codes (LACs), invalid effective and/or expiration times, invalid headers or trailers, etc. Consult Appendix II., "CRS Operational Build 6.0 Site Operator's Manual, dated September 1999" for Weather Message Format Specifications, the pertinent PC based Weather Message Formatter documentation and the pertinent AWIPS Weather Message Product Formatter documentation.

Troubleshooting Contacts:

AWIPS related:

Network Control Facility - 301.713.1284 Available 24 hours/day, 7 days/week.

CRS related:

CRS Program Office - 301.713.0191 Available 0700 - 1530 Eastern, Monday through Friday.

Joel Nathan - Extension 144
Harvey Iwamoto - Extension 200
Al Jarvi - Extension 145